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(54) Title: ANTICARIOGENIC PROTEINS & PEPTIDES & SACCHARIDES

(57) Abstract: This invention discloses new proteins & peptides & saccharides that have anti cariogenic capabilities and that are characterized by the presence of one or more components that have the ability to form a complex with calcium ions: such as epsilon-polylysine that is conjugated with one or more bisphosphonyl-, biscalboxyl-, or 3-hydroxyphthalate-groups or conjugated with Casein phosphopeptide, phosvitin or with partially hydrolyzed phosvitin; such as partially hydrolyzed chitosan that is conjugated with one or more bisphosphonyl groups, Casein phosphopeptide or with phosvitin or partially hydrolyzed phosvitin; such as bisphosphonylated and biscalboxylated proteins with at least 40% of amino acids consisting of lysine and a molecular weight of above 2 kD (2000 dalton) and such as polymerized Casein phosphopeptide and partially hydrolyzed phosvitin. Especially basic polymers that are conjugated with bisphosphonyl-groups, such as bisphosphonylated epsilon-polylysine, are strong protectors due to the simultaneous presence in one molecule of strong calcium-complexing- and strong acid buffering components. In addition, polylysines, such as epsilon-polylysine have demonstrated antibacterial activity against a large variety of oral cavity bacteria including acid producing bacteria. It indicates it's relevance for the protection of teeth in particular and for control of the bacterial flora in the oral cavity in general. The products can be used in formulations to protect teeth and to treat the oral cavity: toothpastes, gels, mouth rinses, artificial saliva'sfor patients and healthy consumers. They have an attractive toxicological profile compared to fluoride, and can be used in food systems; they act additionally to the action of fluoride. The use in combination with fluoride provides excellent and enhanced protection at minimum fluoride dosage. The invention encompasses competent protein & peptide & saccharide structures, based on in-vitro and in-vivo experiments, as well as production procedures and application conditions.

WO 2005/068645 A2